

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR 2004/000892

A. CLASSIFICATION OF SUBJECT MATTER IPC ⁷ : H01M 8/04, 8/02 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC ⁷ : H01M Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPI, PAJ, EPODOC, STN-Patdpa, Internet		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2004/0058223 A1 (SHIBATA et al.) 25 March 2004 (25.03.2004) <i>claim 1, abstract, figure 1.</i> --	1-12
A	US 2001/0036567 A1 (GYOTEN et al.) 1 November 2001 (01.11.2001) <i>claims 1 and 7, abstract, figure 1.</i> --	1-12
A	JP 2003 123786 A (INTERNATIONAL CENTER FOR ENVIRONMENTAL TECHNOL TRANSFER) 25 April 2003 (25.04.2003) <i>Patent abstract of Japan.</i> --	1-12
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 2 December 2004 (02.12.2004)		Date of mailing of the international search report 21 December 2004 (21.12.2004)
Name and mailing address of the ISA/ AT Austrian Patent Office Dresdner Straße 87, A-1200 Vienna Facsimile No. +43 / 1 / 534 24 / 535		Authorized officer STEPANOVSKY M. Telephone No. +43 / 1 / 534 24 / 135

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR 2004/000892

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2003 151570 A (JAPAN STORAGE BATTERY CO. LTD.) 23 May 2003 (23.05.2003) <i>Patent abstract of Japan.</i> --	1-12
A	JP 2003 045452 A (TOYOTA MOTOR CORP.) 14 February 2003 (14.02.2003) <i>Patent abstract of Japan.</i> --	1-12
A	JP 2002 025579 A (MATSUSHITA ELECTRIC IND. CO. LTD.) 25 January 2002 (25.01.2002) <i>Patent abstract of Japan.</i> ----	1-12

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR 2004/000892

Patent document cited in search report			Publication date	Patent family member(s)	Publication date
JP	A	20020255 79A2		none	
JP	A	20030454 52A2		none	
JP	A	20031237 86A2		none	
JP	A	20031515 70A2		none	
US	A	20010036 567		none	
US	A	20040058 223		none	

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference AZ03-377WODA	FOR FURTHER ACTION	See item 4 below
International application No. PCT/KR2004/000892	International filing date (<i>day/month/year</i>) 19 April 2004 (19.04.2004)	Priority date (<i>day/month/year</i>)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant LG ELECTRONICS INC.		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 <i>bis</i> .1(a).																								
2.	This REPORT consists of a total of 3 sheets, including this cover sheet. In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Date of issuance of this report 25 October 2006 (25.10.2006)</td> </tr> <tr> <td style="padding: 2px;">Authorized officer Philippe Becamel e-mail: pt12@wipo.int</td> </tr> </table>	Date of issuance of this report 25 October 2006 (25.10.2006)	Authorized officer Philippe Becamel e-mail: pt12@wipo.int
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PATENT COOPERATION TREATY

REC'D 28 DEC 2004

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To:

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KIMS INTERNATIONAL PATENT & LAW
OFFICE
15th Floor Yo Sam Building, 648-23,
Yeoksam-dong, Kangnam-gu
135-080 Seoul
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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing 21 December 2004 (21.12.2004)
(day/month/year)

Applicant's or agent's file reference
AZ03-377WODA

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/KR 2004/000892

International filing date (day/month/year)
19 April 2004 (19.04.2004)

Priority Date (day/month/year)

International Patent Classification (IPC) or both national classification and IPC
H01M 8/04, 8/02

Applicant

LG ELECTRONICS INC.

1. This opinion contains indications relating to the following items:

- ☒ Cont. No. I Basis of the opinion
- ☐ Cont. No. II Priority
- ☐ Cont. No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Cont. No. IV Lack of unity of invention
- ☒ Cont. No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Cont. No. VI Certain documents cited
- ☐ Cont. No. VII Certain defects in the international application
- ☐ Cont. No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/KR 2004/000892

Continuation No. I

Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed.

Continuation No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-12	YES
	Claims ----	NO
Inventive step (IS)	Claims 1-12	YES
	Claims ----	NO
Industrial applicability (IA)	Claims 1-12	YES
	Claims ----	NO

2. Citations and explanations:

Novelty:

The cited literature shows fuel cells with anode- and cathode side separators . There could not be found a fuel cell comprising electrolyte, anode and cathode, an anode side separator and a cathode side separator, and a medium layer between the cathode and the cathode side separator for prevention of corrosion of the cathode side separator. So the subject-matters of the present application appear to be new, since they are not totally described in the cited literature.

Inventive step:

The resulting advantageous effects of the fuel cell comprising electrolyte, anode and cathode, an anode side separator and a cathode side separator, and a medium layer between the cathode and the cathode side separator for prevention of corrosion of the cathode side separator, as claimed could not be foreseen, therefore the subject matters claimed meet the requirements of inventiveness.

Industrial applicability:

The industrial applicability of the fuel cell of the present application is self-evident.

PATENT COOPERATION TREATY

REC'D 28 DEC 2004

WIPO

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To:

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KIMS INTERNATIONAL PATENT & LAW
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Yeoksam-dong, Kangnam-gu
135-080 Seoul
Republic of Korea

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

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For further options, see Form PCT/ISA/220.

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/KR 2004/000892

Continuation No. I

Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed.

Continuation No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-12	YES
	Claims ----	NO
Inventive step (IS)	Claims 1-12	YES
	Claims ----	NO
Industrial applicability (IA)	Claims 1-12	YES
	Claims ----	NO

2. Citations and explanations:

Novelty:

The cited literature shows fuel cells with anode- and cathode side separators. There could not be found a fuel cell comprising electrolyte, anode and cathode, an anode side separator and a cathode side separator, and a medium layer between the cathode and the cathode side separator for prevention of corrosion of the cathode side separator. So the subject-matters of the present application appear to be new, since they are not totally described in the cited literature.

Inventive step:

The resulting advantageous effects of the fuel cell comprising electrolyte, anode and cathode, an anode side separator and a cathode side separator, and a medium layer between the cathode and the cathode side separator for prevention of corrosion of the cathode side separator, as claimed could not be foreseen, therefore the subject matters claimed meet the requirements of inventiveness.

Industrial applicability:

The industrial applicability of the fuel cell of the present application is self-evident.
